

The Harman Kardon Model CD91

Manual No. 51B

ULTRA WIDEBAND LINEAR PHASE CASSETTE DECK

Technical Manual



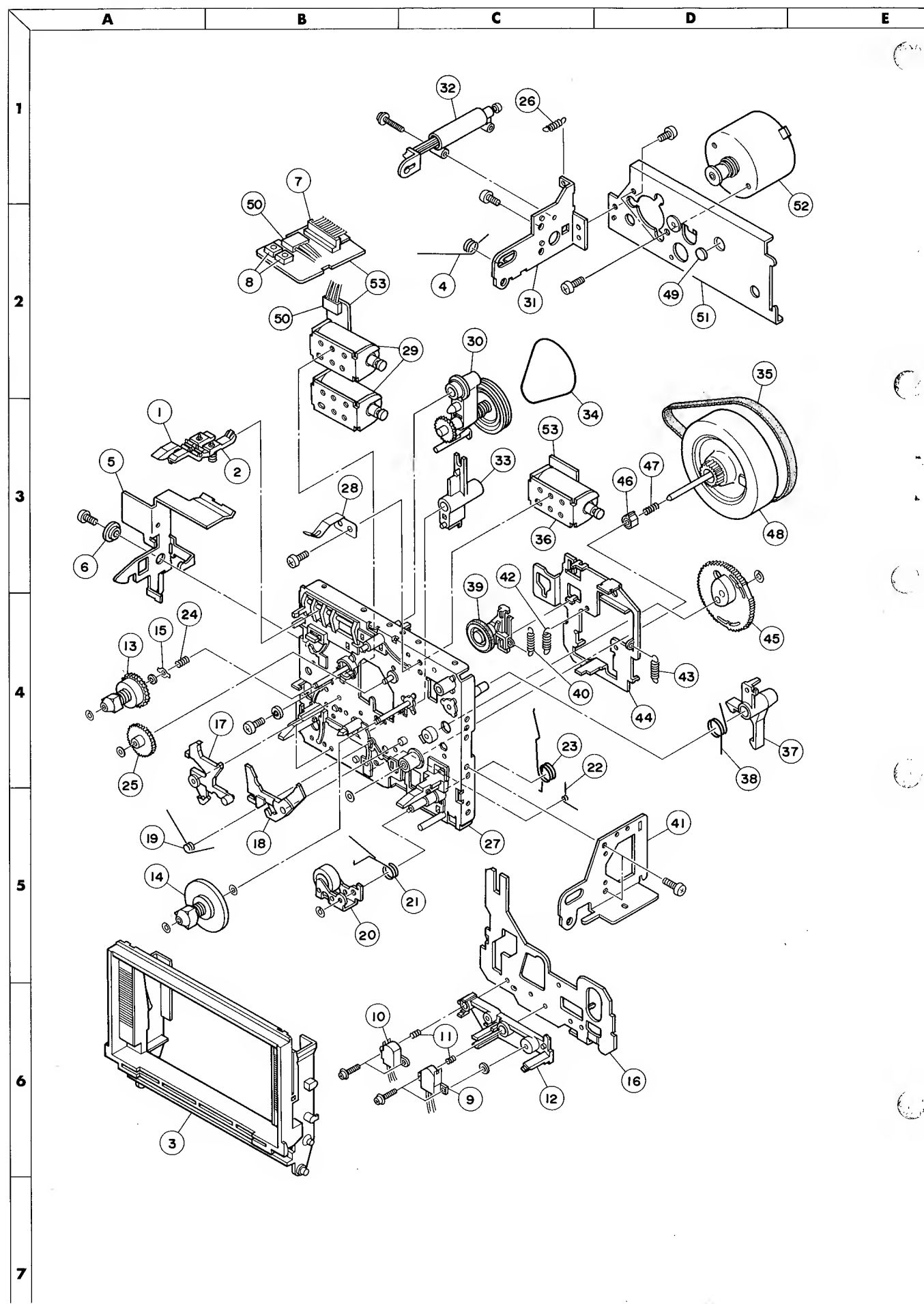
SUPPLEMENTARY MANUAL

THE CASSETTE MECHANISM WAS REVISED AT SERIAL NUMBER 27001. FOLLOWING IS THE COMPLETE PARTS LIST AND ASSEMBLY DRAWINGS OF THE REVISED CASSETTE MECHANISM. ALSO, SOME REVISIONS IN THE CIRCUITRY ARE INCORPORATE. REFER TO TECHNICAL MANUAL NO. 51A FOR ALL OTHER REPLACEMENT PARTS AND SERVICE INFORMATION EXCEPT FOR THE CHANGES AS NOTED IN THIS SUPPLEMENT.

harman/kardon

240 CROSSWAYS PARK WEST, WOODBURY, N.Y. 11797
1112-H15251B1 P-088412 1250 PRINTED IN JAPAN

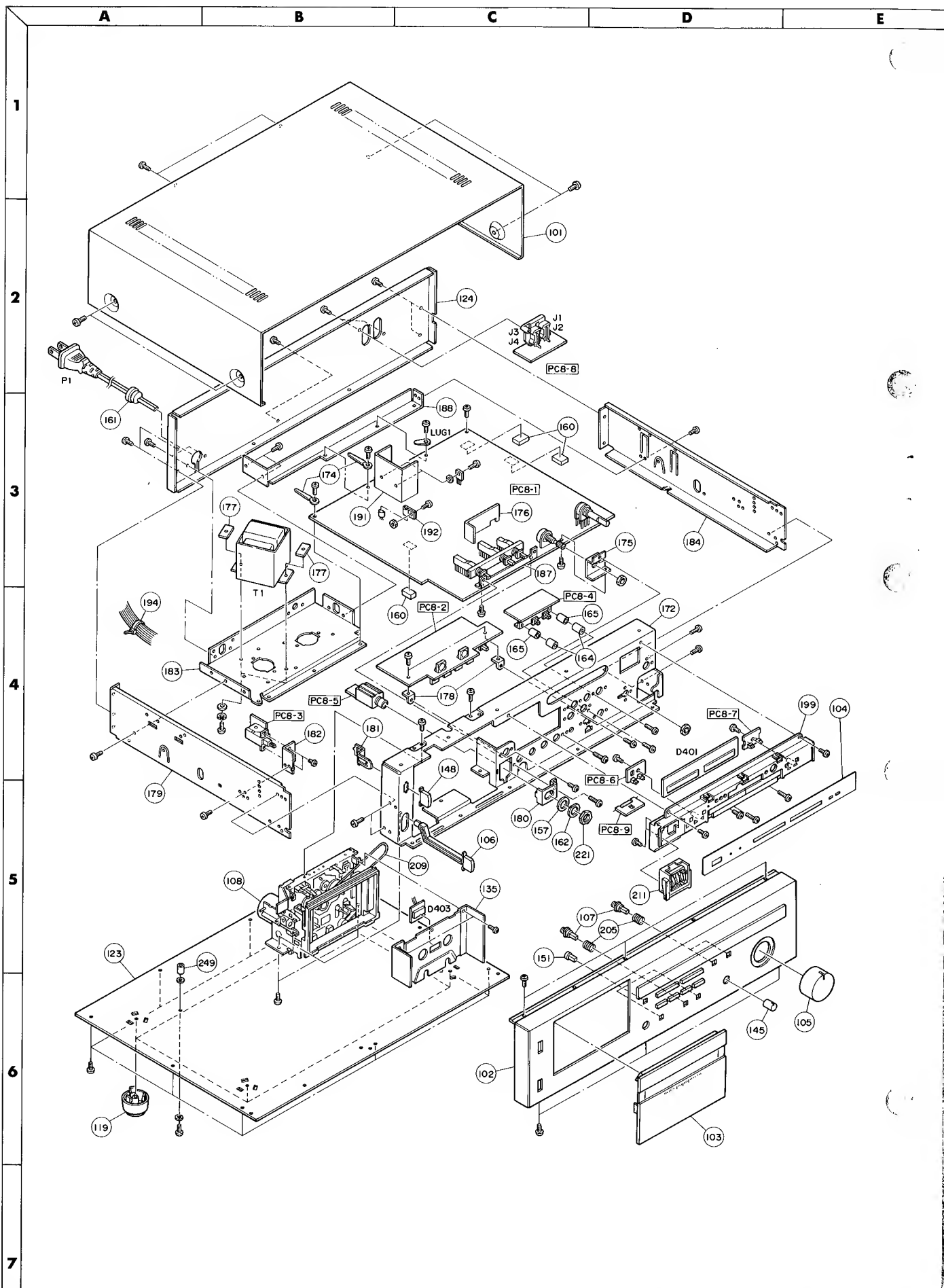
CASSETTE MECHANISM EXPLODED VIEW



CASSETTE MECHANISM PARTS LIST

Ref. No.	Part No.	Description
1	F245-011	Record Arm
2	F244-011	Switch Arm
3	FD28S-14	Cassette Support
4	FK568-11	Spring, Door
5	FC30K-11	Eject Lock Arm
6	FM296-11	Spacer
7	KY130-11	Connector, 8-Pin
8	UE13K-11	Switch
9	FU161-13	Head, Record/Playback
10	FU192-11	Head, Erase
11	FK572-11	Spring, Azimuth
12	FD23C-13	Spacer, Head
13	F105-020	Supply Reel Assembly
14	F123-026	Take-up Reel Assembly
15	FC29K-11	Spring Holder
16	FC29N-13	Head Base
17	FD24H-12	Brake Arm (L)
18	FD24K-12	Brake Arm (R)
19	FK18U-11	Spring, Brake
20	F014-075	Pinch Roller
21	FK18S-11	Spring, Pinch Roller
22	FK18V-11	Spring, Solenoid Arm
23	FK18T-14	Spring, Assist
24	FK11F-47	Spring, Back Tension
25	FN14B-12	Idler Gear
26	FK18M-11	Spring, Eject Lock Arm
27	F011-163	Chassis Assembly
28	FC29E-11	Spring, Cassette
29	PKA16112	Solenoid, F. FWD, REW.
30	FR17M-13	Clutch Assembly
31	FC29F-11	Bracket, Dumper
32	FP472-11	Dumper Assembly
33	FD23B-12	F. FWD/REW. Solenoid Arm
34	FP463-11	Sub-Belt
35	FF14A-11	Main Belt
36	PKA16113	Solenoid, Play
37	FD23E-12	Play Arm
38	FK18W-12	Spring, Play Arm
39	FR17N-11	Idler Assembly
40	FK18R-11	Spring, Idler
41	FC29G-11	Bracket, Door
42	FK18N-11	Spring, Head Base
43	FK18P-11	Spring, Assist Base
44	FC29M-12	Assist Base
45	FN14C-12	Play Gear
46	FD24G-12	Collar
47	FK11F-51	Spring, Flywheel
48	FR17E-11	Flywheel Assembly
49	UJ11S-11	Spacer
50	WH20C-01	Connector with Lead Wire, 4-Pin
51	FC29H-15	Bracket, Motor
52	F064-129	Motor
53	FP12T-12	Connector Panel

GENERAL UNIT EXPLODED VIEW



GENERAL UNIT PARTS LIST

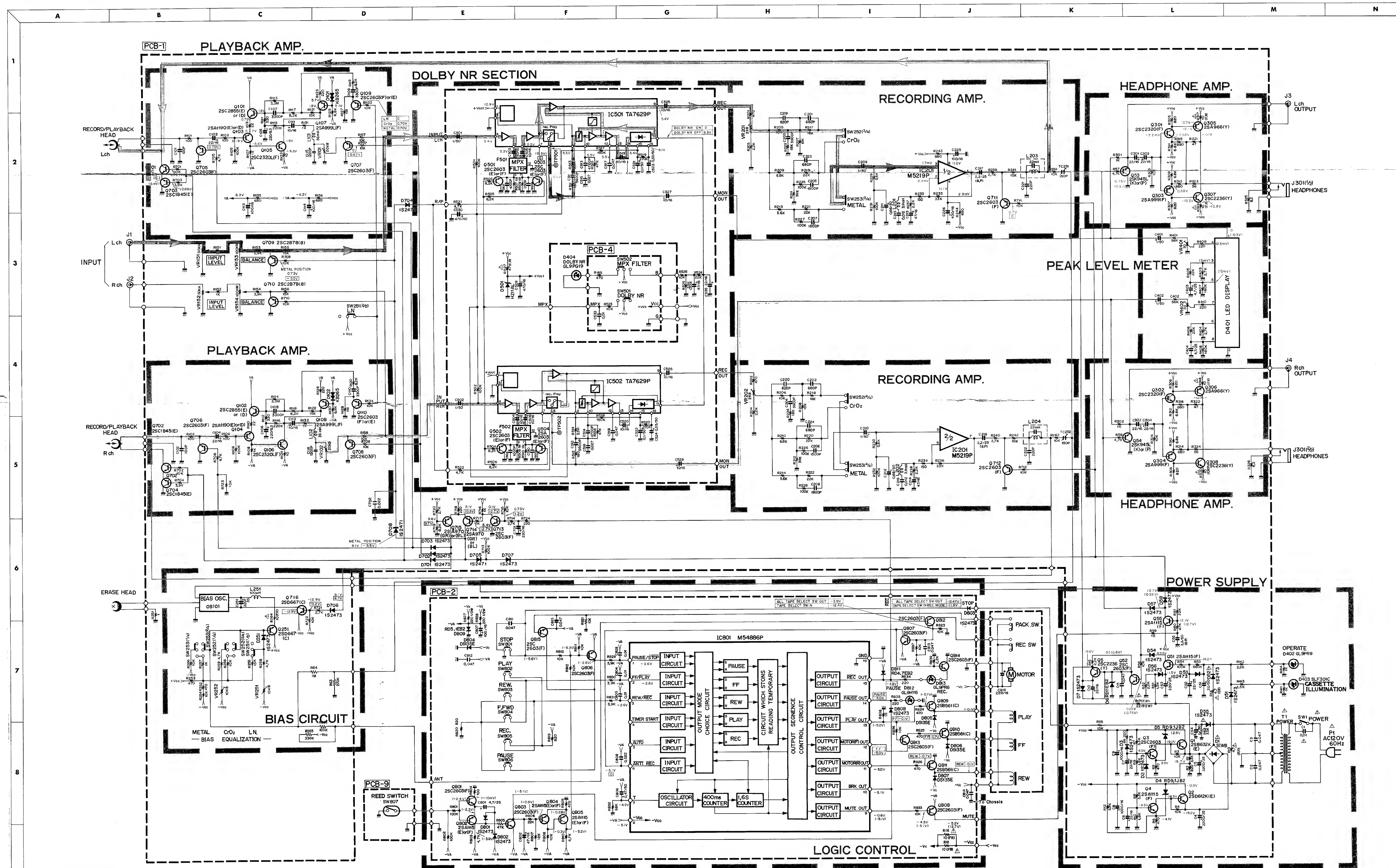
Ref. No.	Part No.	Description
103	A452-CD91B	Cover Assembly
104	A514-CD91C	Plate Assembly, LED Display
106	A662-CD91B	Push Button Assembly, Power
107	A662-CD91C	Push Button Assembly, Tape Selector, Dolby NR System, MPX Filter
108	3112-12801	Cassette Tape Recorder Mechanical Assembly
135	1514-15401	Dressing Plate
164	2132-5052	Spacer
165	2132-7016	Spacer
187	2219-7899	Bracket
199	2240-7181	Holder
205	2651-210187	Spring

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
CHASSIS MISCELLANEOUS		
C815	5345-227C041	Capacitor, 220 μ F, \pm 20%, 16V, Electrolytic
JM151	4242-034202	Jumper Lead, 3-Wire
PCB-1 MAIN P.C. BOARD		
RESISTORS		
R16, 18	5102-1004715	10 Ω , \pm 2%, 1/4W, Fuse
CAPACITORS		
C54	5345-105-50	1 μ F, +75%—10%, 50V, Electrolytic
C101, 102	5353-101534	100pF, \pm 5%, 500V, Mica
C105, 106	5345-227A0952	220 μ F, \pm 20%, 6.3V, Electrolytic
C209, 210, 501, 502	5345-105F0952	1 μ F, \pm 20%, 50V, Electrolytic
C211, 212	5345-L684M50	0.68 μ F, \pm 20%, 50V, Electrolytic
C217, 218	5342-225F0951	2.2 μ F, \pm 20%, 50V, Electrolytic
C219, 220	5359-8215851	820pF, \pm 5%, 100V, Polypropylene
C223, 224	5359-6815851	680pF, \pm 5%, 100V, Polypropylene
C301, 302, 303, 304	5345-226C041	22 μ F, \pm 20%, 16V, Electrolytic
C525, 526, 527, 528	5345-106C0952	10 μ F, \pm 20%, 16V, Electrolytic
INTEGRATED CIRCUIT		
IC201	5652-M5219P	M5219P
TRANSISTORS		
Q53, 54	5613-945L(K) or (P)	2SC945L (K) or 2SC945L (P)
Q105, 106	5613-2320L(F)	2SC2320L (F)
Q107, 108	5611-999L(F)	2SA999L (F)
Q301, 302	5613-2603(F) or (E)	2SC2603(F) or 2SC2603 (E)
Q303, 304	5611-1115(F)	2SA1115(F)
Q714, 715	5611-970(GR) or (BL)	2SA970 (GR) or 2SA970 (BL)
DIODES		
D4, 5	5635-RD9R1JB2	Zener, RD9.1JB2
D705, 708	5631-1S2471	1S2471
COILS		
L101, 102	5995-363156	
L201, 202	5933-70323	
MISCELLANEOUS		
F203, 204	5214-43	LC Components
P701	4443-060185	Connector, 6-Pin

Ref. No.	Part No.	Description
PCB-2 LOGIC CONTROL P.C. BOARD		
CAPACITORS		
C802	5345-476C041	47 μ F, \pm 20%, 16V, Electrolytic
C806	5345-474F041	0.47 μ F, \pm 20%, 50V, Electrolytic
TRANSISTOR		
Q815	5613-2603(F)	2SC2603 (F)
MISCELLANEOUS		
J801	4163-70996	Connector with Lead Wire, 8-Pin
JM701	4242-062007	Jumper Lead, 6-Wire

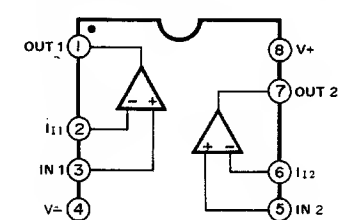
SCHEMATIC DIAGRAM



..... RECORDING SIGNAL (Lch)

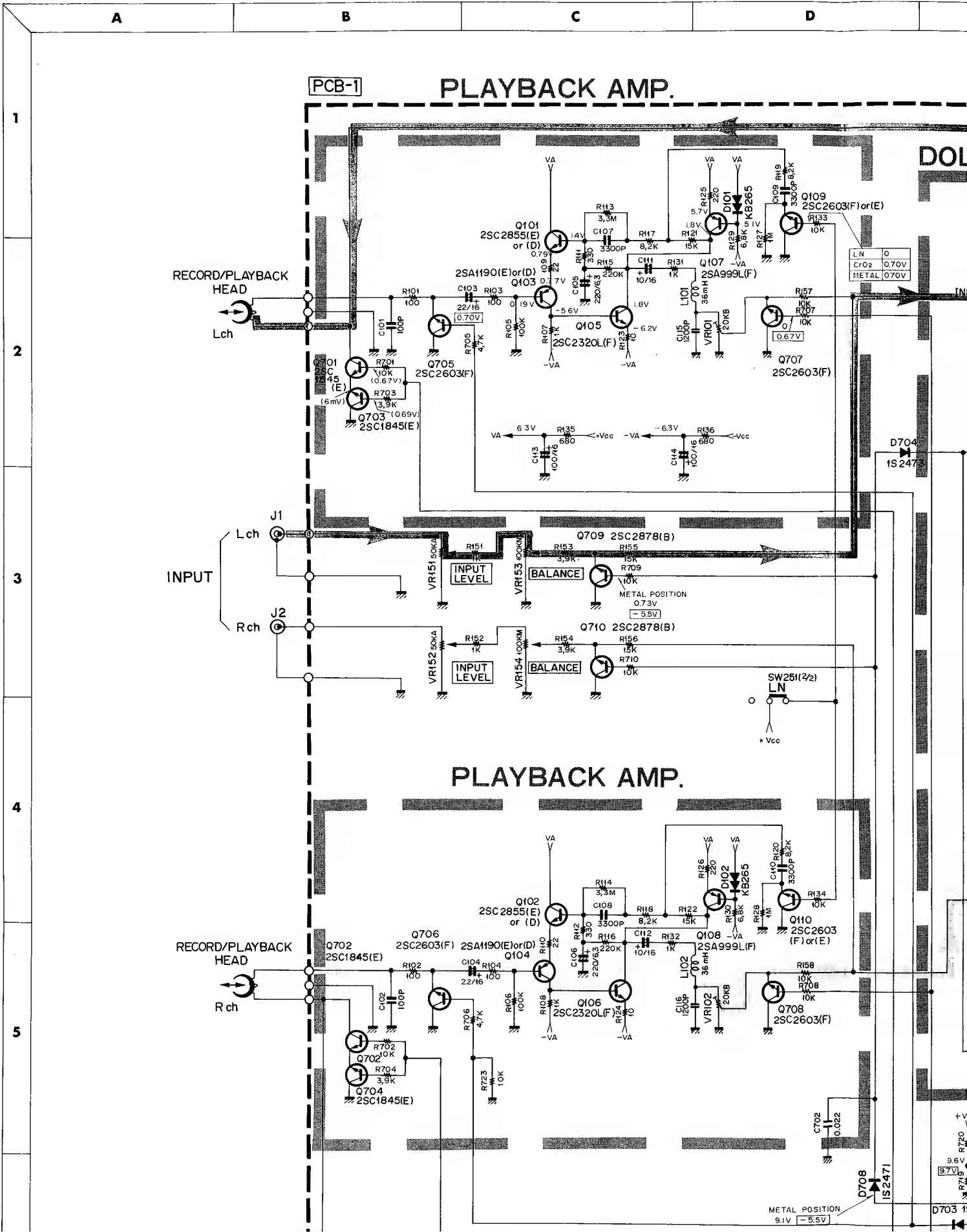
..... PLAYBACK SIGNAL (Rch)

IC FUNCTIONAL BLOCK DIAGRAM

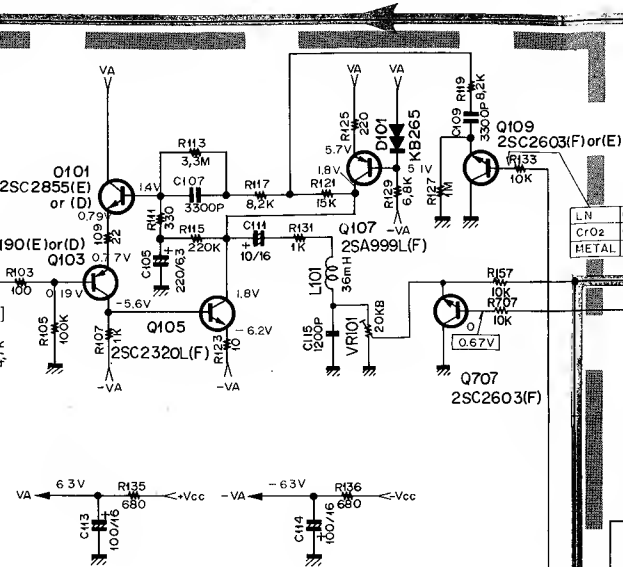
IC201: μ PC4558C

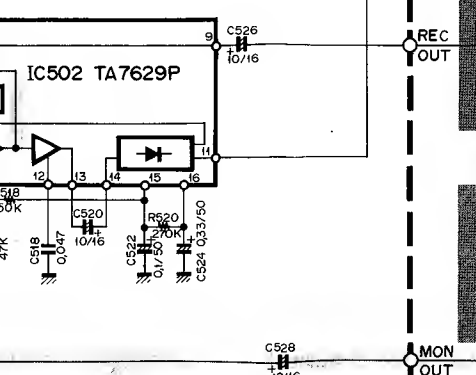
- ALL RESISTANCES VALUES ARE IN Ω .
k Ω = 1000 Ω , M Ω = 1000 k Ω .
- THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
- ALL CAPACITANCES VALUES ARE IN μ F UNLESS OTHERWISE NOTED. P = μ F.
- V: DC VOLTAGE AT NO SIGNAL.
... V STOP MODE
... V PLAYBACK MODE
... V RECORDING MODE
- SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

SCHEMATIC DIAGRAM

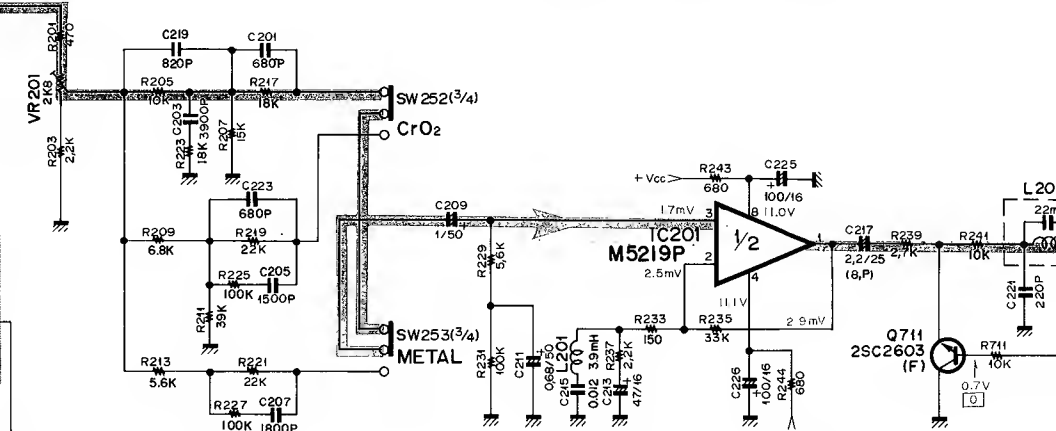


PLAYBACK AMP.

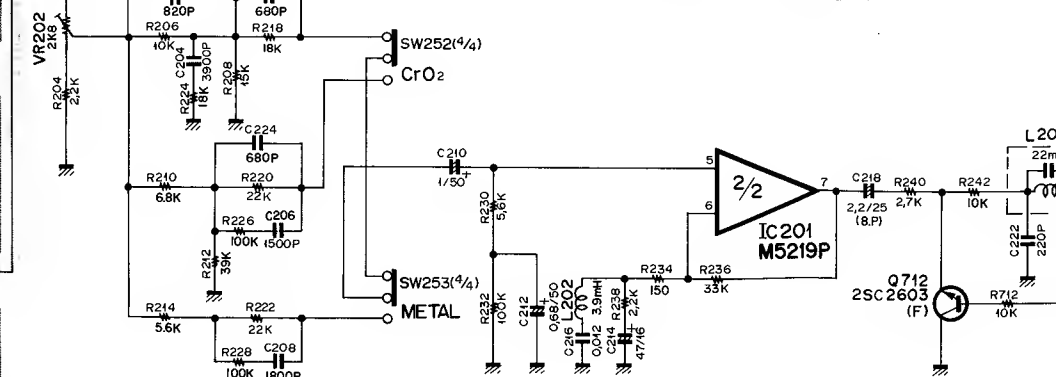




RECORDING AMP.



RECORDING AMP.



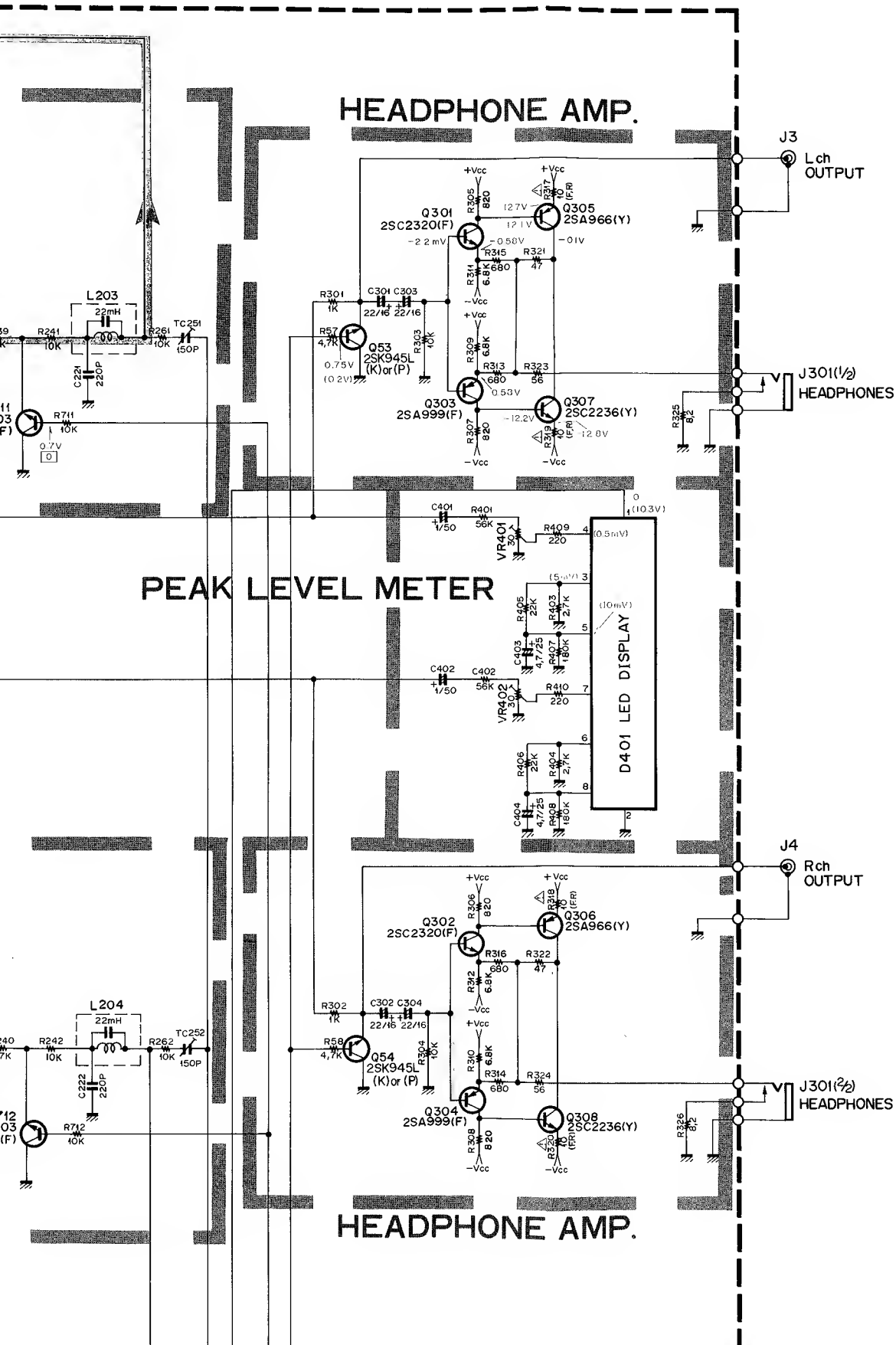
K

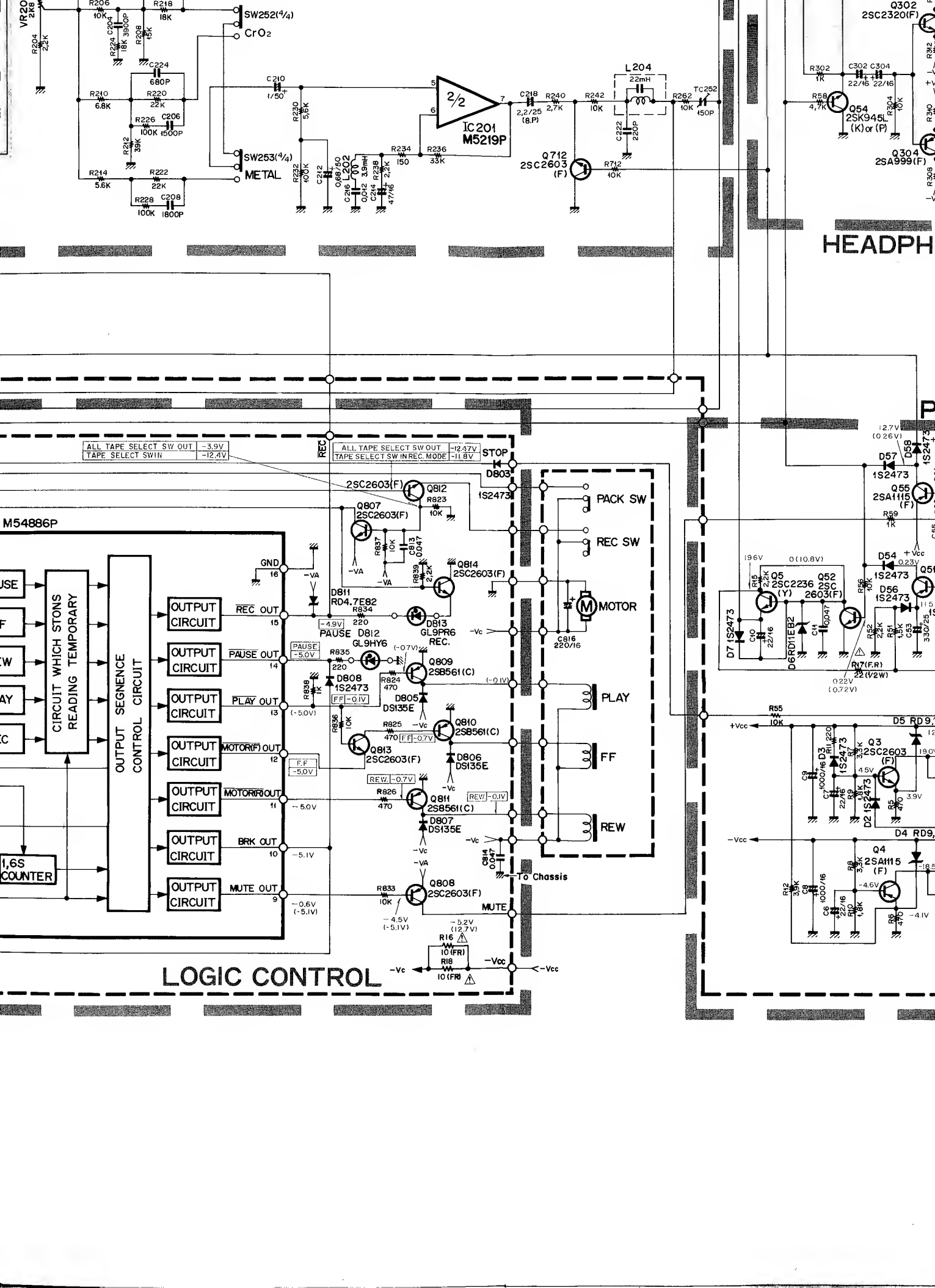
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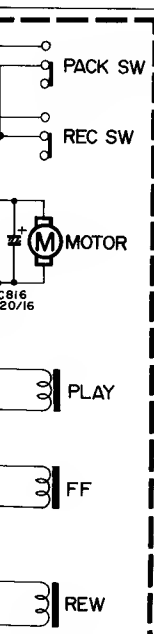
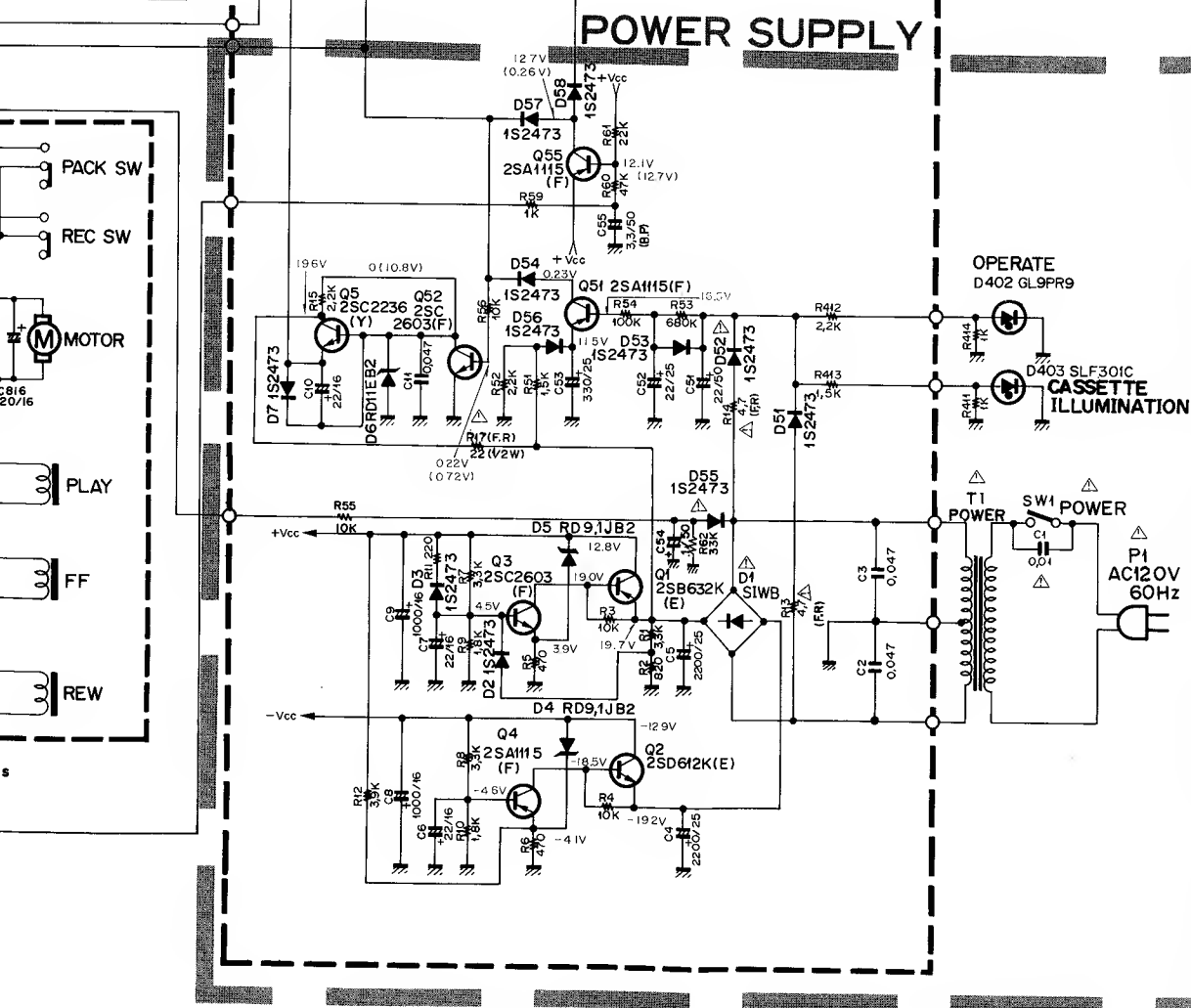
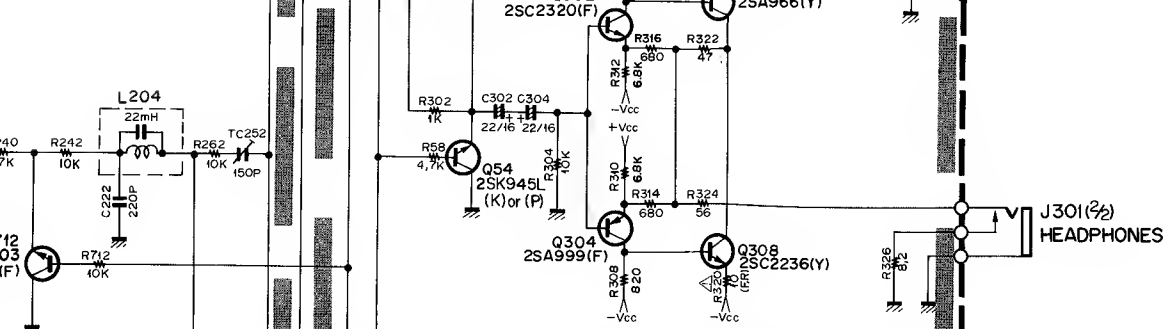
M

N

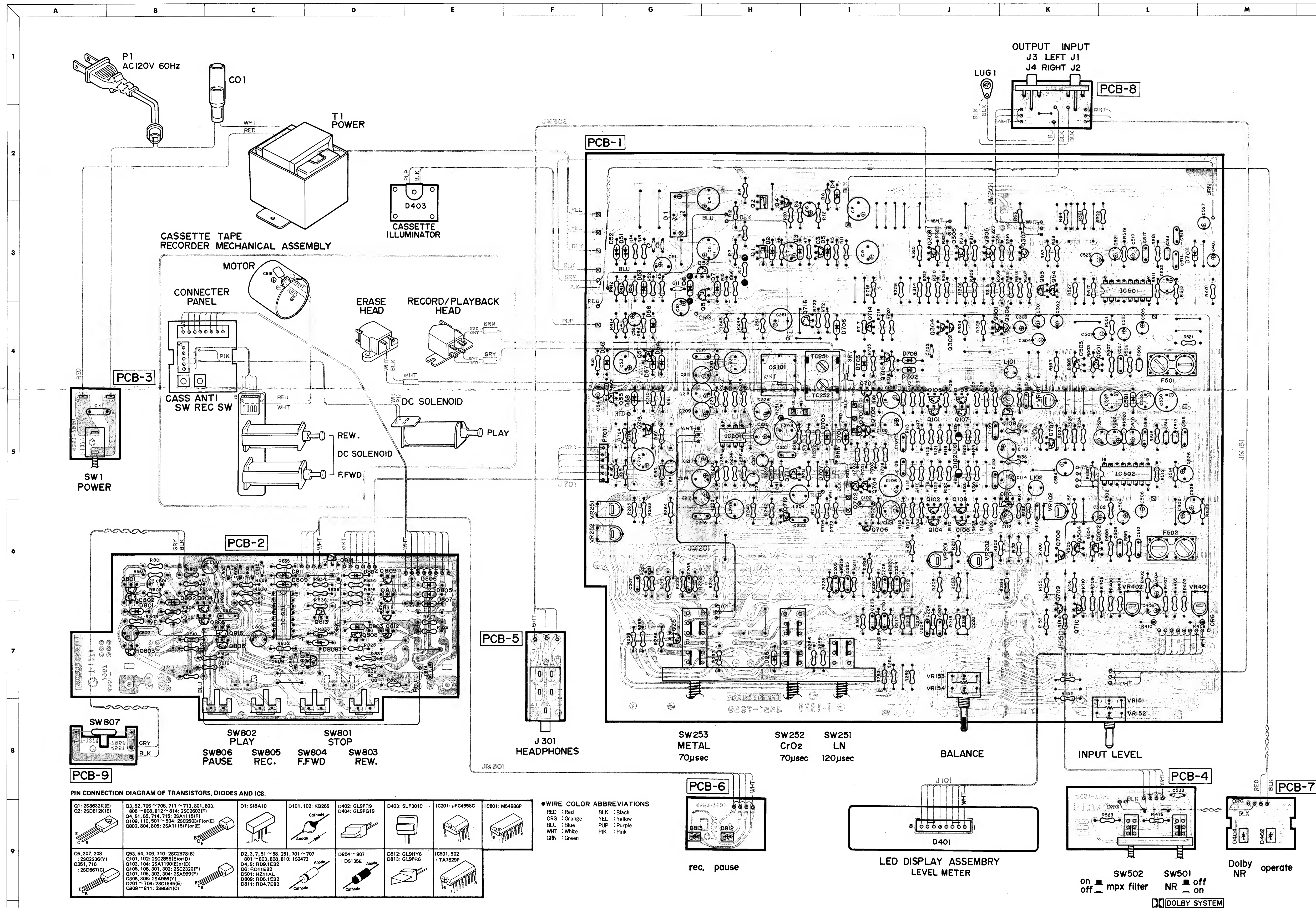
HEADPHONE AMP.



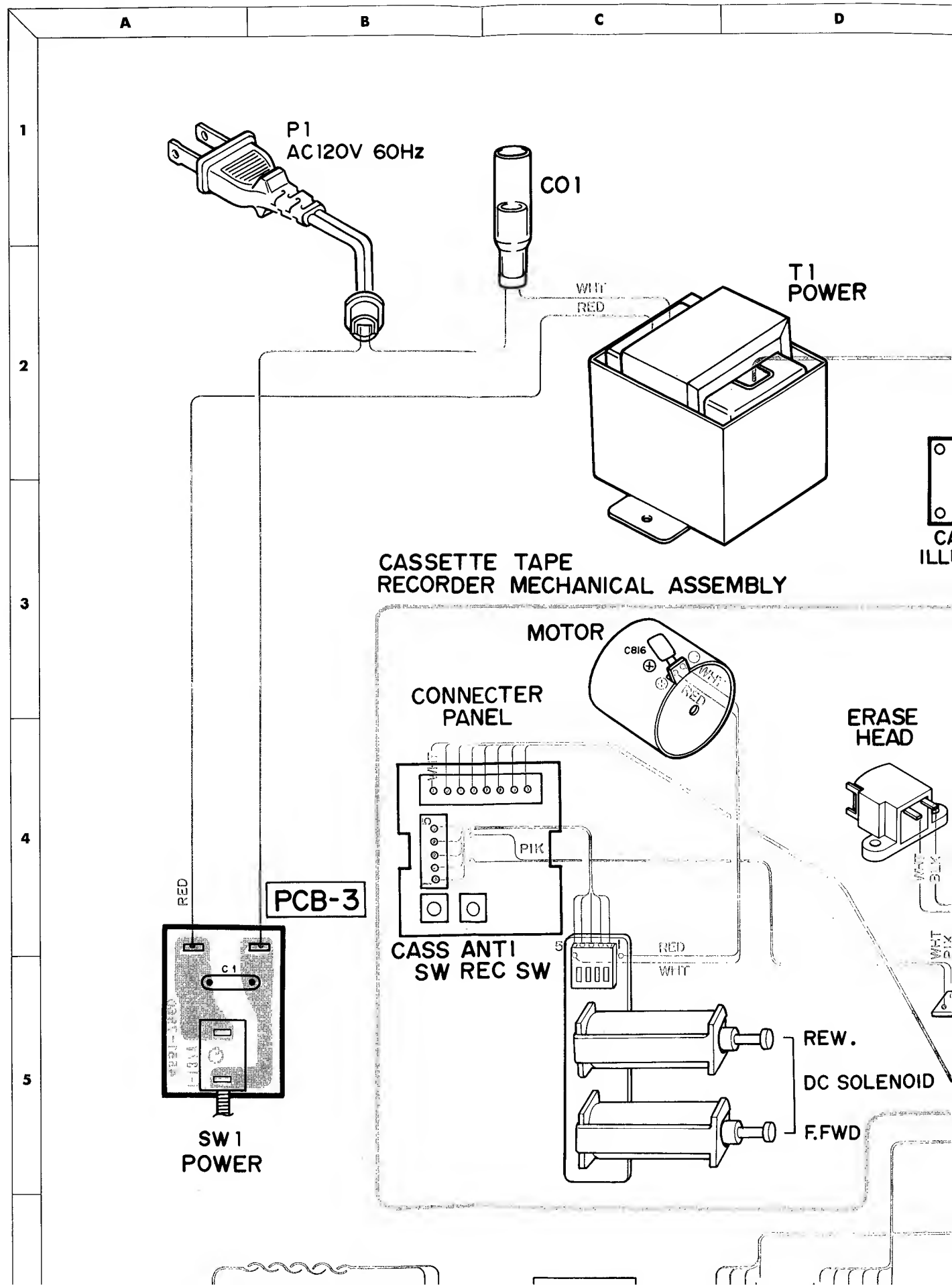




WIRING DIAGRAM



WIRING DIAGRAM



C

D

E

F

CO1

WHT
REDT1
POWERTE TAPE
ER MECHANICAL ASSEMBLY

MOTOR

ECTOR
NEL

PIK

ANTI
REC SWRED
WHTERASE
HEADRECORD/PLAYBACK
HEAD

WHT

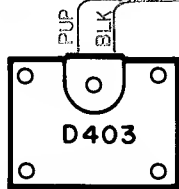
DC SOLENOID

REW.

DC SOLENOID

F.FWD

PLAY

CASSETTE
ILLUMINATOR

JM302

PCB-1

YEL

YEL

BLK

BLK

WHT

BLK

PUP

YEL

YEL

BLK

WHT

RED

WHT

WHT

WHT

WHT

WHT

WHT

WHT

D52

D51

R412

R413

R414

R415

R416

R417

R418

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R421

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R424

R425

R426

R427

R428

R251

R252

R253

G

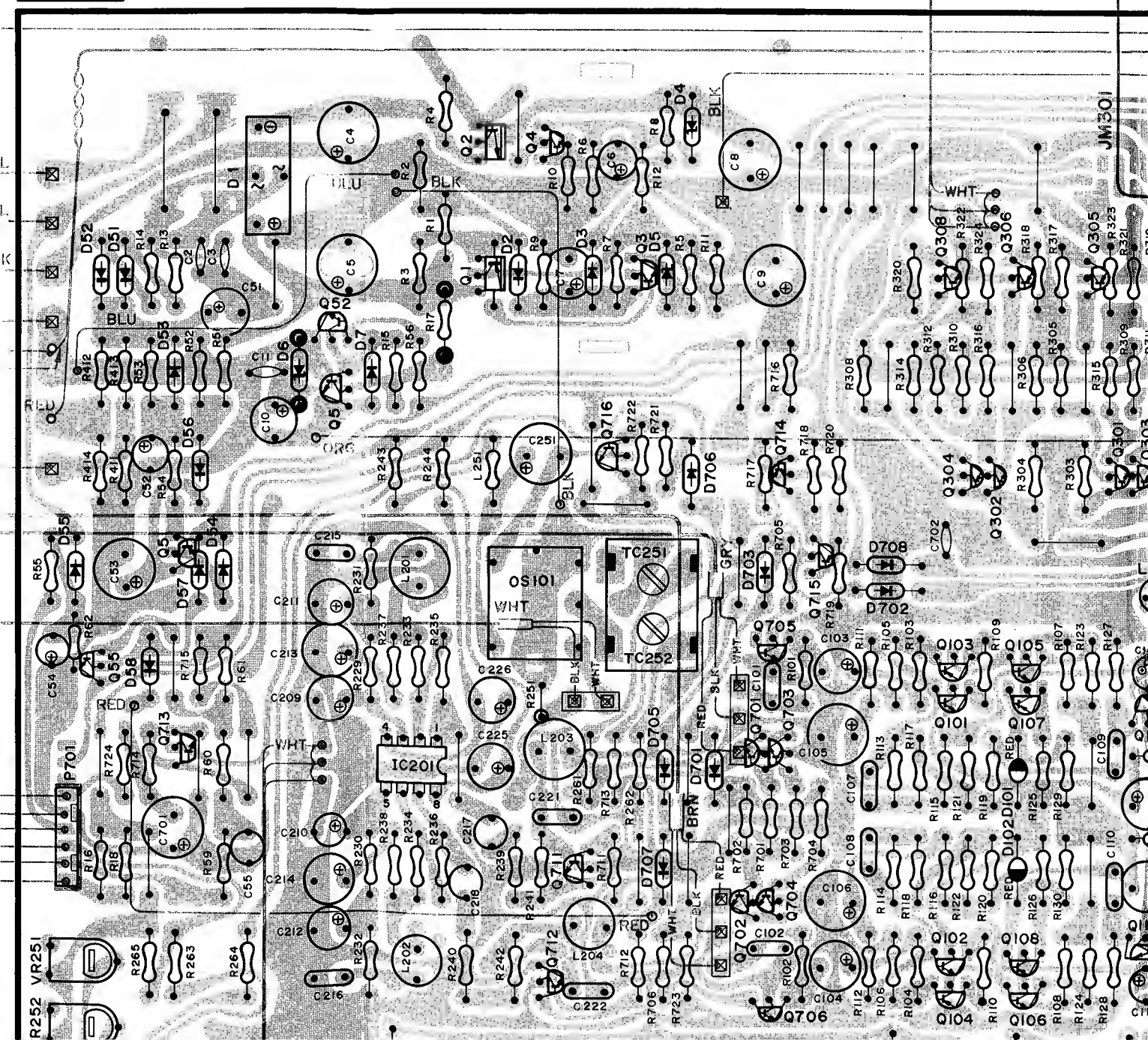
H

I

J

LUG 1

PCB-1



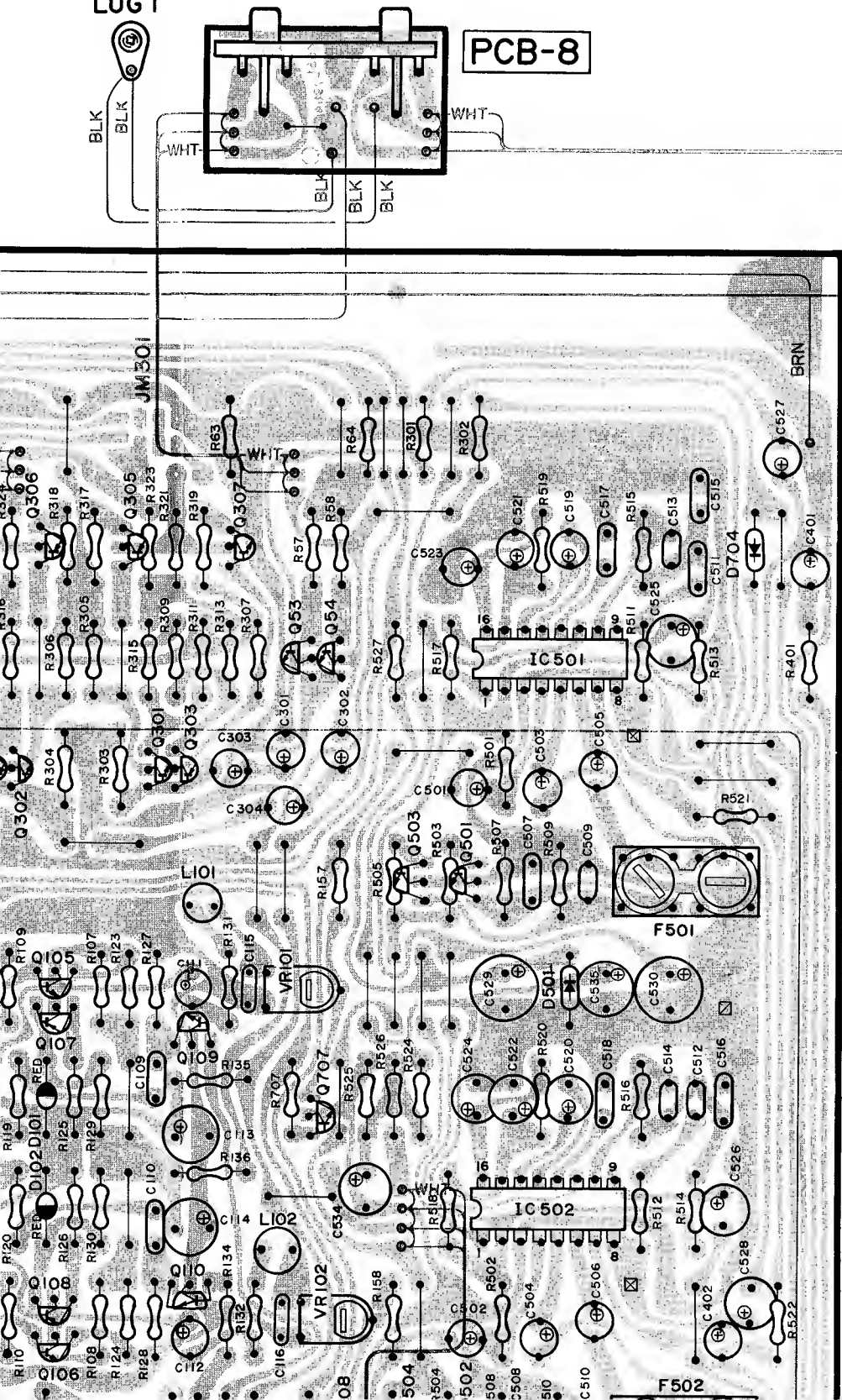
OUTPUT INPUT

J3 LEFT J1

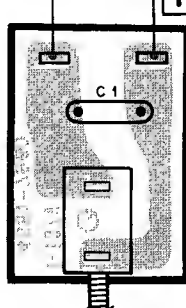
J4 RIGHT J2

LUG 1

PCB-8

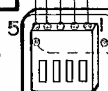


JM 131

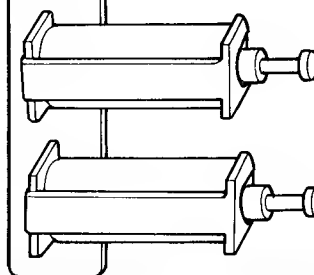


SW 1
POWER

CASS ANTI
SW REC SW



RED
WHT

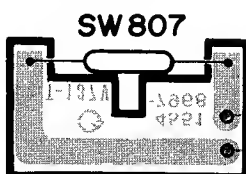
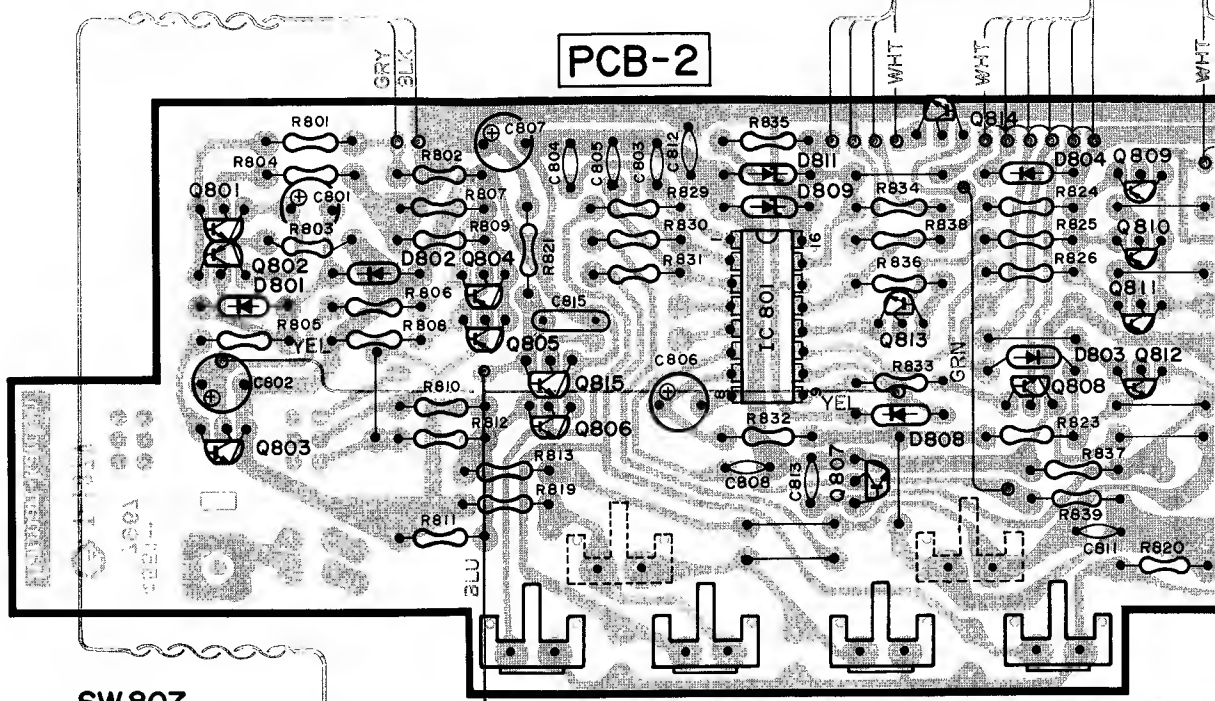


REW.

DC SOLENOID

F.FWD

PCB-2



SW 807

GRY
BLK

SW802
PLAY

SW801
STOP

SW806
PAUSE

SW805
REC.

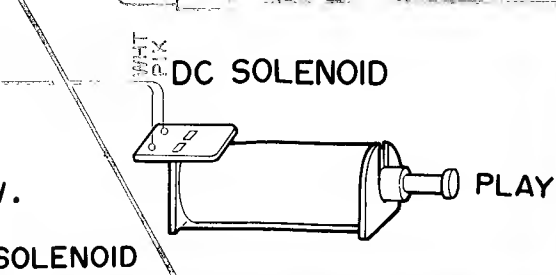
SW804
F.FWD

SW803
REW.

PCB-9

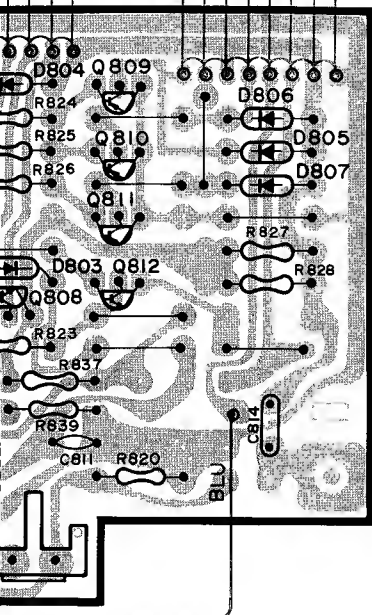
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.

<p>Q1: 2S8632K(E) Q2: 2SD612K(E)</p>	<p>Q3, 52, 705 ~ 708, 711 ~ 713, 801, 803, 806 ~ 808, 812 ~ 814: 2SC2603(F) Q4, 51, 55, 714, 715: 2SA1115(F) Q109, 110, 501 ~ 504: 2SC2603(F)or(E) Q802, 804, 805: 2SA1115(F)or(E)</p>	<p>D1: SIBA10</p>	<p>D101, 102: KB265</p>	<p>D402: GL9PR9 D404: GL9PG19</p>	<p>D403: SL</p>
<p>Q5, 307, 308 : 2SC2236(Y) Q251, 716 : 2SD667(C)</p>	<p>Q53, 54, 709, 710: 2SC2878(B) Q101, 102: 2SC2855(E)or(D) Q103, 104: 2SA1190(E)or(D) Q105, 106, 301, 302: 2SC2320(F) Q107, 108, 303, 304: 2SA999(F) Q305, 306: 2SA966(Y) Q701 ~ 704: 2SC1845(E) Q809 ~ 811: 2S8561(C)</p>	<p>D2, 3, 7, 51 ~ 58, 251, 701 ~ 707 801 ~ 803, 808, 810: 1S2473 D4, 5: RD9.1EB2 D6: RD11EB2 D501: HZ11AL D809: RD5.1EB2 D811: RD4.7EB2</p>	<p>D804 ~ 807 : DS135E</p>	<p>D812: GL D813: GL</p>	



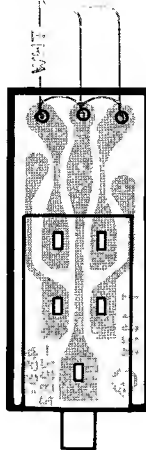
SOLENOID

VD



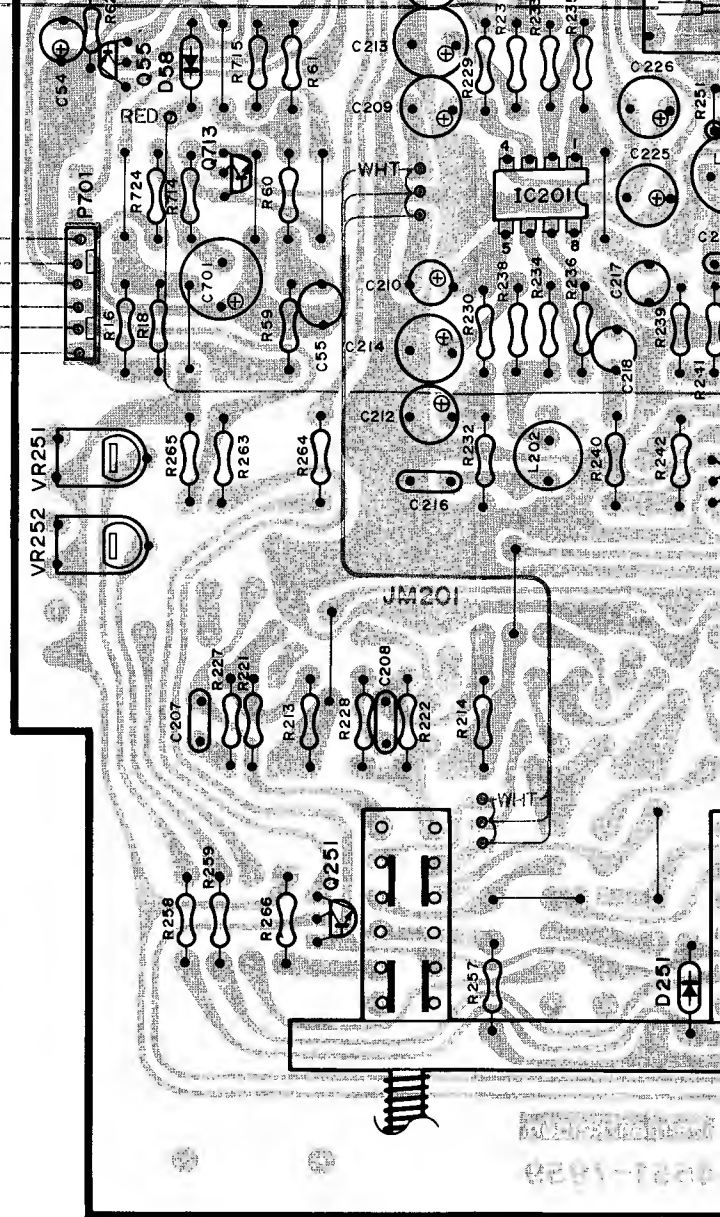
W803
REW.

PCB-5



J 301
HEADPHONES

JMB01



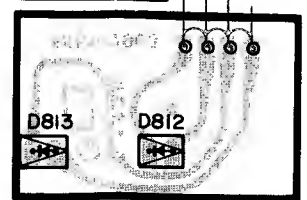
SW 253
METAL
70µsec

GL9PR9 GL9PG19	D403: SLF301C	IC201: µPC4558C	IC801: M54886P
807 15E Anode	D812: GL9HY6 D813: GL9PR6	IC501, 502 : TA7629P	

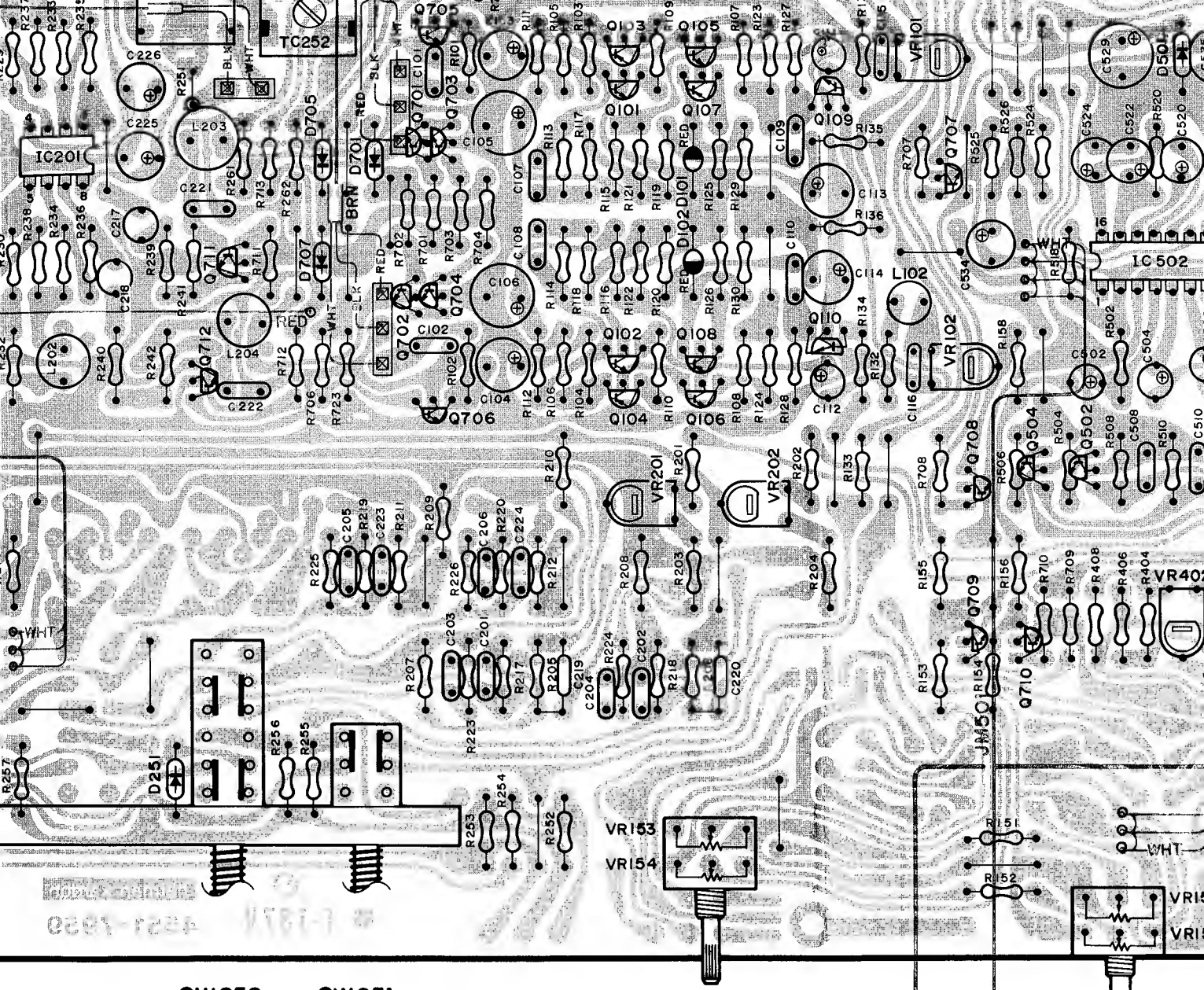
● WIRE COLOR ABBREVIATIONS

RED : Red	BLK : Black
ORG : Orange	YEL : Yellow
BLU : Blue	PUP : Purple
WHT : White	PIK : Pink
GRN : Green	

PCB-6



rec. pause

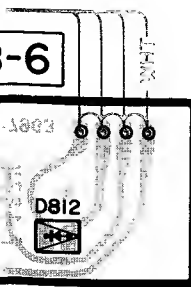


SW 252
CrO₂
70μsec

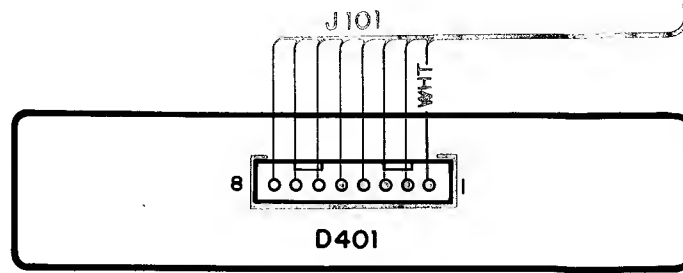
SW 251
LN
120μsec

BALANCE

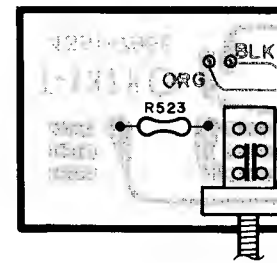
INPUT LEVEL



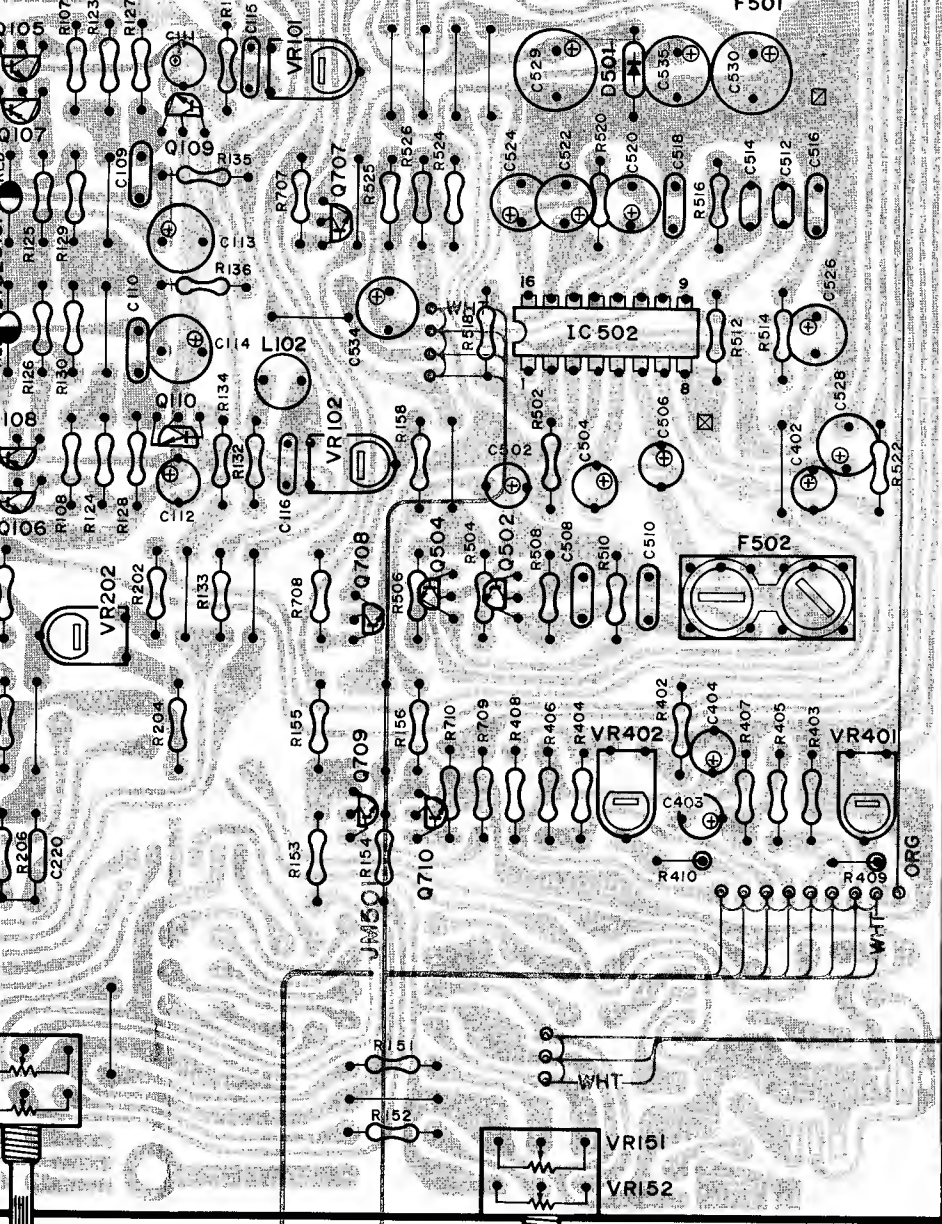
pause



LED DISPLAY ASSEMBRY LEVEL METER



on ☒ SW50
off ☐ mpx filter



JM151

ANCE

INPUT LEVEL

PCB-4

PCB-7

SEMBRY
ER

SW502 SW501
on ☒ off ☒
off ☐ on ☐ mpX filter NR on

☒ ☐ DOLBY SYSTEM

Dolby operate
NR